EXHIBITS IN SUPPORT OF REQUEST FOR ENTRY OF AMENDMENT

EV213537371US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of	:	January 24, 2005
Lorin E. Ullmann, et al	:	Group Art No.: 2154
Serial No. 09/737,368	:	Examiner: Haresh Patel
Filed: December 15, 2000	:	for IBM Corporation Anne Vachon Dougherty 3173 Cedar Road Yorktown Hts, NY 10598

Title: METHOD AND APPARATUS IN NETWORK MANAGEMENT FOR SLOW APPLICATION PROGRAMMING INTERFACES FOR STATUS QUERIES

AMENDMENT

Commissioner for Patents
Sir:

In response to the Office Action dated September 22, 2004, Applicants submit the following:

Amendments to the Specification as set forth on pages 2-3.

Amendments to the Claims, including cancellation of Claims 9, 10, 23-24 and 29, as reflected in the Listing of Claims which begin on page 4.

Arguments/Remarks which begin on page 14.

AMENDMENTS TO THE SPECIFICATION

Replace the Title of the Invention with the following:

METHOD AND APPARATUS FOR IDENTIFYING SLOW LINKS AND FOR PROVIDING APPLICATION-BASED RESPONSES TO SLOW LINKS IN A DISTRIBUTED COMPUTER NETWORK

Amend the paragraph found from page 7, line 1 to page 8, line 2 as set forth below.

As shown in Fig. 2, the server 200 includes the already-available DKS core services at component 202, which services include the object request broker (ORB) 212, service manager 222, and the Administrator Configuration Database 232, among other standard DKS services. The DKS Internet Points of Presence (IPOP) Manager 203 provides the functionality for gathering network data, as is detailed in the co-pending patent application entitled "METHOD AND SYSTEM FOR MANAGEMENT OF RESOURCES LEASES IN AN APPLICATION FRAMEWORK SYSTEM", Serial No.[[_____]] 09/738,307, filed [[_____]] December 15, 2000, the teachings of which are incorporated by reference herein (Docket AUS9-2000-0699). In accordance with the functionality of the DKS IPOP, endpoint and link data are gathered for use by the DKS Slow Link Manager 204, the functions of which are further

detailed below. The endpoint and link information gathering may include existing functionality such as SNMP queries for Network Interface Card (NIC) speed which will return speed data from NICs such as Ethernet cards or the like having the capability to respond to such queries. Another feature of existing network components includes the ability to generate and register responses from so-called "pings" between multiple links or endpoints to gauge the response time between two links. A Network Objects database 213 and an Endpoint Status database 223 are provided at the DKS IPOP Manager 203 for storing the information which has been gathered. Additional information which will be stored, for example at the Endpoint Status database 223, includes notifications of device failure and the like.

LISTING OF CLAIMS

1. (original) A method for identifying slow links in a distributed network comprising a plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links comprising the steps of:

defining an original link speed factor for each of said plurality of links;

performing at least one runtime measurement of at least one runtime link speed indicator for each of said plurality of links;

calculating a runtime link speed factor based on said runtime measurement of at least one runtime link speed indicator for each of said plurality of links; and

comparing the original link speed factor to the runtime link speed factor for each of said plurality of links.

2. (original) The method according to Claim 1 further comprising designating as a slow link any link for which the runtime link speed factor satisfies a desired relationship to the original link speed factor.

3. (original) The method according to Claim 2 further comprising notifying at least one of said computers about at least one of the designated slow links.

4. (original) The method according to Claim 2 wherein a plurality of applications are running in said network and further comprising notifying at least one of said applications about at least one of the designated slow links.

5. (original) The method according to Claim 4 further comprising said at least one of said applications altering its usage of said at least one of the designated slow links.

6. (original) The method according to Claim 2 wherein a plurality of applications are running in said network and further comprising automatically altering application usage of the designated slow links.

7. (original) The method according to Claim 2 further comprising identifying designated slow links to a system administrator.

8. (original) The method according to Claim 2 further comprising said system administrator altering application usage of the designated slow links.

9. (withdrawn) A method for defining responses to detection of slow links in a distributed network comprising a plurality of computers having a plurality of endpoints, said

endpoints being connected by a plurality of links comprising the steps of:

creating a topology map of said distributed network;

displaying said topology map to a system administrator;

providing application information to said system administrator, said information relating to applications to be run on said distributed network; and

said system administrator predefining at least one application response to the detection of slow links in said distributed network.

10. (withdrawn) The method according to Claim 9 further comprising storing said at least one predefined application response.

11. (currently amended) A method for dynamically adjusting application usage of links in a distributed network comprising a plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links comprising the steps of:

detecting at least one slow link in said distributed network;

for each detected slow link, determining what specific applications ~~requires~~ require access to said detected slow link; and

adjusting application usage of said detected slow link by said each of said specific applications.

12. (original) The method according to Claim 11 wherein said adjusting application usage comprises invoking preprogrammed application responses.

13. (original) The method according to Claim 11 wherein said adjusting application usage comprises the steps of:

notifying a system administrator of the detection of at least one slow link; and

said system administrator identifying specific actions to adjust application usage of said at least one slow link.

14. (original) The method according to Claim 11 further comprising the steps of:

a system administrator predefining and storing at least one application response to the detection of slow links in said distributed network; and

retrieving said at least one application response upon detection of said at least one slow link.

15. (original) The method according to Claim 11 wherein said identifying at least one slow link comprises the steps of:

defining an original link speed factor for each of said plurality of links;

performing at least one runtime measurement of at least one runtime link speed indicator for each of said plurality of links;

calculating a runtime link speed factor based on said runtime measurement of at least one runtime link speed indicator for each of said plurality of links;

comparing the original link speed factor to the runtime link speed factor for each of said plurality of links; and

designating as a slow link any link for which the runtime link speed factor satisfies a desired relationship to the original link speed factor.

16. (original) The method according to Claim 11 wherein a plurality of applications are running in said network and further comprising automatically altering application usage of the designated slow links.

17. (original) Apparatus for identifying slow links in a distributed network comprising a plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links comprising:

at least one storage location for storing an original link speed factor for each of said plurality of links;

at least one measurement component for performing at least one runtime measurement of at least one runtime link speed indicator for each of said plurality of links;

a processing component for calculating a runtime link speed factor based on said runtime measurement of at least one runtime link speed indicator for each of said plurality of links; and

a comparator component for comparing the original link speed factor to the runtime link speed factor for each of said plurality of links.

18. (original) The apparatus according to Claim 17 wherein said processing component further comprises a component for designating as a slow link any link for which the runtime link speed factor satisfies a desired relationship to the original link speed factor.

19. (original) The apparatus according to Claim 18 further comprising notification means for notifying at least one of said computers about at least one of the designated slow links.

20. (original) The apparatus according to Claim 18 wherein a plurality of applications are running in said network and wherein said apparatus further comprises a component for automatically altering application usage of the designated slow links.

21. (original) The apparatus according to Claim 18 further comprising graphical user interface means for identifying designated slow links to a system administrator.

22. (original) The apparatus according to Claim 21 further comprising user input means for said system administrator to input instructions for altering application usage of the designated slow links.

23. (withdrawn) Apparatus for defining responses to detection of slow links in a distributed network comprising a plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links comprising:

a mapping component for creating a topology map of said distributed network;

display means for displaying said topology map to a system administrator;

graphical user interface means for providing application information to said system administrator, said information relating to applications to be run on said distributed network; and

user input means for said system administrator to predefine and input at least one application response to the detection of slow links in said distributed network.

24. (withdrawn) The apparatus according to Claim 24 further comprising at least one storage location for storing said at least one predefined application response.

25. (original) Apparatus for dynamically adjusting application usage of links in a distributed network comprising a plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links comprising:

at least one detection component for detecting at least one slow link in said distributed network; and

a processing component for determining what specific applications requires access to each of said detected slow links; and for adjusting application usage of said detected slow link by said each of said specific applications.

26. (original) The apparatus according to Claim 25 further comprising storage means for storing preprogrammed application responses to detected slow links.

27. (original) The apparatus according to Claim 25 further comprising:

notification means for notifying a system administrator of the detection of at least one slow link; and

user input means for said system administrator to input specific actions to adjust application usage of said at least one slow link.

28. (currently amended) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform a method ~~steps~~ for identifying slow links in a distributed network comprising a plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links, said method comprising the steps of:

defining an original link speed factor for each of said plurality of links;

performing at least one runtime measurement of at least one runtime link speed indicator for each of said plurality of links;

calculating a runtime link speed factor based on said runtime measurement of at least one runtime link speed indicator for each of said plurality of links; and

comparing the original link speed factor to the runtime link speed factor for each of said plurality of links.

29. (withdrawn) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for defining responses to detection of slow links in a distributed network comprising a

plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links, said method comprising the steps of:

creating a topology map of said distributed network;

displaying said topology map to a system administrator;

providing application information to said system administrator, said information relating to applications to be run on said distributed network; and

said system administrator predefining at least one application response to the detection of slow links in said distributed network.

30. (currently amended) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform a method ~~steps~~ for dynamically adjusting application usage of links in a distributed network comprising a plurality of computers having a plurality of endpoints, said endpoints being connected by a plurality of links, said method comprising the steps of:

detecting at least one slow link in said distributed network;

for each detected slow link, determining what specific applications requires access to said detected slow link; and

adjusting application usage of said detected slow link by said each of said specific applications.

REMARKS

The Examiner has requested cancellation of the withdrawn claims; has objected to the Specification; has objected to the Figures; has rejected Claim 28 under 35 USC 112; has rejected Claims 1-6, 11, 12, 15-20, 25-26, 28 and 30 under 35 USC 102 as anticipated by Li; has rejected Claims 7, 8, 13, 14, 21, 22, and 27 under 35 USC 103 as unpatentable over Li in view of Ganz; and, has rejected Claims 1-8, 11-22, 25-28, and 30 under 35 USC 102 as anticipated by Chirashnya. Applicants respond to the Examiner's requests herein and respectfully assert that the claims are allowable over the cited art.

With regard to the withdrawn claims, Applicants herein cancel those claims without prejudice to future prosecution of the claims. With regard to the objections to the Specification, Applicants have amended the Specification herein to provide a new Title of the Invention and to submit the data for a referenced patent application, which has not been available at the time of filing. With regard to the Figures, Applicants submit formal drawings herewith. In response to the rejection of Claim 28 as lacking antecedent basis, Applicants amend the preamble language of Claim 28, as well as Claim 30, to recite "a method" instead of "method steps."

Claims 1-6, 11, 12, 15-20, 25-26, 28 and 30 have been rejected under 35 USC 102 as anticipated by Li. The Li patent id

directed to a method for providing admission control (AC) for service requests based on bandwidth. Li defines "...an admit limit (AL) representing a bandwidth utilization capacity allocated to a service offered on the weakest link of the network". When a request for the service is received, the required bandwidth for the request is compared to the bandwidth utilization capacity for that service. If the required bandwidth exceeds the bandwidth utilization capacity, the request is rejected.

Applicants respectfully assert that the Li patent does not teach or suggest the invention as claimed. The present invention, as taught and claimed, provides a method, system, and program storage device for performing method steps for identifying slow links in a distributed network. Under the present invention, a first step is defining an original link speed factor for each of the links in the distributed network. What Li does is define a bandwidth utilization capacity for a particular service based on the service using the weakest link in Li's network. Li does not define an original link speed factor for each link. The term "link speed" refers to a specific, measurable value, as set forth in the Specification on page 2, and does not encompass all possible values assignable to a network. Applicants respectfully assert that bandwidth capacity is not the same as link speed.

Applicants further note that Li does not perform at least one runtime measurement of at least one runtime link speed indicator for each of a plurality of links. Li uses its original bandwidth capacity for a service throughout its operation. While Li can "deduct" capacity from that value, based on acceptance of requests, Li does not actually measure capacity during runtime, let alone measure a runtime link speed indicator. Li compares all incoming requests, routed from the edge routers to the QoS manager, to the originally determined bandwidth utilization capacity for the requested service. The bandwidth capacity is determined based on an assumption that a particular link is the weakest link, and will always be the weakest link in the network. Li does not teach or suggest dynamically determining if a link is weak.

Applicants further contend that Li does not teach or suggest the step of calculating a runtime link speed factor based on runtime measurements. As noted above, Li relies on the predefined bandwidth capacity and does not use measurements to dynamically assess runtime link speed. Accordingly, it cannot be concluded that Li calculates a runtime link speed factor based on measurements if Li has not performed any measurements related to link speed.

Finally, with regard to the claim feature of comparing the original link speed factor to the runtime link speed factor, Applicants reiterate that Li does not define an original link

speed factor, does not measure runtime link speed and does not calculate a runtime link speed factor. Clearly, therefore, Li cannot then compare values which Li has not defined, measured, or calculated.

For a reference to anticipate claim language under 35 USC 102, that reference must teach each and every claim feature. Since the Li patent does not teach the claimed steps or means for defining an original link speed factor for each link, performing at least one runtime measurement for each link, calculating a runtime link speed factor for each link, and comparing the calculated runtime link speed factor to the original link speed factor, it cannot be concluded that Li anticipates the invention as claimed in independent Claims 1, 17 and 28, or the claims which depend therefrom and add limitations thereto (Claims 2-8, 18-22), or those claims which recite parallel limitations (Claim 15).

With regard to the language of independent Claims 11, 25 and 30, and the claims which depend therefrom (Claims 12-16 and 26-27) and those claims which also recite application-based response to detected slow links (Claims 4-6, 8, and 20), Applicants again note that the Li patent does not teach the claimed step or means for detecting at least one slow link in the distributed network. Applicants rely on the arguments set forth above with respect to that claim feature. Further, Applicants contend that the Li patent neither teaches nor suggests the step

for each detected slow link of determining what specific applications require access to the detected slow link and adjusting application usage of the detected slow link by the specific applications. The Examiner has concluded that the Li passage, from the Abstract, which mentions "dynamic bandwidth adjustment" anticipates "dynamically adjusting application usage". Applicants respectfully disagree. The only dynamic bandwidth adjustment performed by Li is deducting required bandwidth for a request from the bandwidth utilization capacity when a request is accepted. Li does not dynamically adjust bandwidth based on measured or detected bandwidth, and clearly does not dynamically adjust based on measured link speed. Moreover, what Li teaches is that requests are either accepted or rejected based on the bandwidth required for the request as compared to the bandwidth utilization capacity which was predefined based on a predetermined weakest link in the network. Li does not teach or suggest adjusting application usage of links. Applicants reiterate that anticipation under 35 USC 102 can only be maintained if the reference teaches each and every claim feature. Li does not teach or suggest adjusting application usage, either by a system administrator or the application itself, in response to dynamic detection of slow links. Accordingly, Applicants conclude that the Li patent does not anticipate the language of Claims 11-16, 25-27, 30, or those

claims which also recite application-based response to detected slow links (Claims 4-6, 8, and 20).

Claims 7, 8, 13, 14, 21, 22, and 27 have been rejected under 35 USC 103 as unpatentable over Li in view of Ganz. Applicants rely on the arguments set forth above with regard to the teachings of the Li patent. Further, Applicants assert that the Ganz patent does not provide those teachings which are missing from the Li patent. Ganz is cited for its teachings related to an administrator identifying slow links and altering application usage of slow links. Applicants first note that the claim language does not recite that a system administrator identifies slow links. Rather, the claim language calls for the system administrator to be notified of designated slow links and to perform altering of application usage of the designated slow links. Moreover, the Ganz patent does not provide that a system administrator alter application usage of slow links based on dynamic detection of slow links based on link speed measurements. Ganz, like Li, looks to bandwidth capacity, which is not the same as or suggestive of link speed.

Claims 1-8, 11-22, 25-28, and 30 have been rejected under 35 USC 102 as anticipated by Chirashnya. The Chirashnya patent is directed to a system and method to detect faulty switch adapters. Chirashnya has multiple nodes transmit packets through a switch adapter which is to be tested and then detects, at the packet destination, whether a bad packet has been received. If a bad

packet is detected, the source (i.e., the faulty switch adapter) is identified. Alternatively, the packets arriving at the destination are counted, and a faulty switch adapter is identified if fewer packets arrived than were sent.

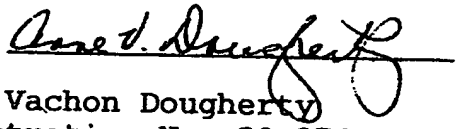
Applicants respectfully assert that the Chirashnya patent does not anticipate the invention as claimed. Chirashnya does not teach the claimed steps or means for defining an original link speed factor for each link, performing at least one runtime measurement for each link, calculating a runtime link speed factor for each link, and comparing the calculated runtime link speed factor to the original link speed factor. Applicants reiterate that "link speed" is carefully chosen language which does not encompass all attributes for characterizing a network. The claimed invention expressly defines, measures, calculates and compares link speeds. In contrast, Chirashnya sends packets through a switch adapter and then counts or evaluates the integrity of packets at the destination. Since Chirashnya does not define an original link speed, does not perform runtime measurements of link speed indicators and calculate runtime link speeds based on those measurements, and does not compare original to runtime link speeds, it cannot be maintained that Chirashnya anticipates the language of independent Claims 1, 17 and 28, or the claims which depend therefrom and add limitations thereto (Claims 2-8, 18-22), or those claims which recite parallel limitations (Claim 15).

Similarly with regard to Claims 11-16, 25-27, 30, and the other claims, Claims 4-6, 8, and 20, which depend from Claims 1 and 17 and which also recite application-based response to detected slow links, Applicants respectfully assert that the Chirashnya patent does not anticipate the claim language. Chirashnya does not teach application-based response to faulty switch adapters. At best, in response to identification of a faulty switch adapter, packets are re-routed under the Chirashnya patent. Clearly, therefore, Chirashnya does not anticipate the invention as set forth in claims 4-6, 8, 11-16, 20, 25-27, and 30.

Based on the foregoing amendments are remarks, Applicants respectfully request entry of the amendments, reconsideration of the rejections, and issuance of the claims.

Respectfully submitted,

Lorin Ullmann, et al

By: 

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of	:	January 24, 2005
Lorin E. Ullmann, et al	:	Group Art No.: 2154
Serial No. 09/737,368	:	Examiner: Haresh Patel
Filed: December 15, 2000	:	for IBM Corporation Anne Vachon Dougherty 3173 Cedar Road Yorktown Hts, NY 10598

Title: METHOD AND APPARATUS IN NETWORK MANAGEMENT FOR SLOW APPLICATION PROGRAMMING INTERFACES FOR STATUS QUERIES

PETITION FOR EXTENSION OF TIME

Commissioner for Patents
Sir:

Applicant hereby petitions for an extension of time for response for a period of one month. The period for response to the Office Action dated September 22, 2004 for the above-identified patent application will now expire on January 24, 2005, the 22nd having fallen on a weekend.

A check in the amount of $120.00 is enclosed for the one month extension.

Respectfully submitted,
L. E. Ullmann

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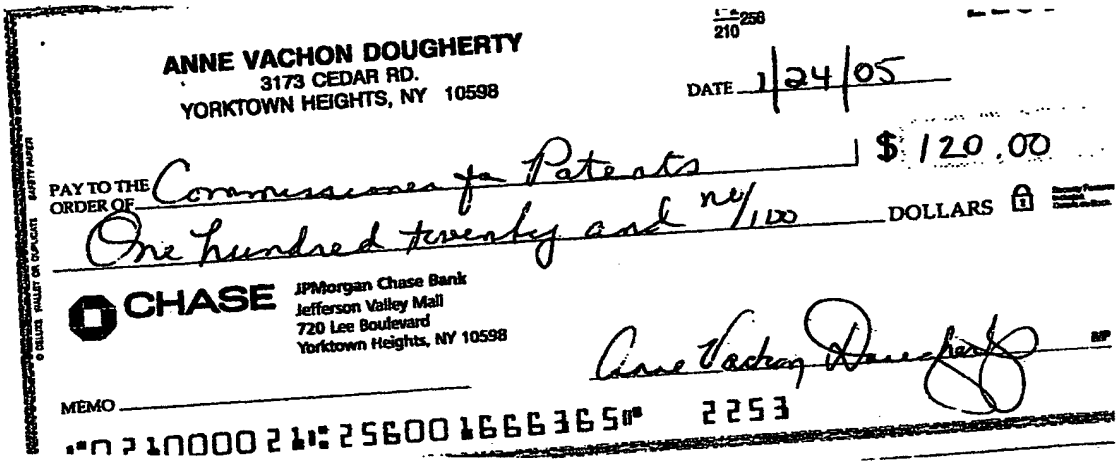

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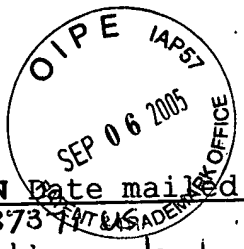

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Paper filed: Amendment, Petition, check, card

Docket : AUS920000829-US1

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Title: METHOD AND APPARATUS IN NETWORK MANAGEMENT FOR SLOW APPLICATION PROGRAMMING INTERFACES FOR STATUS QUERIES

Filing Date: 12/15/00

Serial No: 09/737,368

Attorney: AVD/JSL